त्रि.वि. सेवा आयोग

प्रशासन सेवा, प्राविधिक समूहका अधिकृत स्तरका विभिन्न पदहरूको

प्रयोगात्मक परीक्षाको पाठ्यक्रम

त्रिभुवन विश्वविद्यालय

सेवा आयोग

प्रयोगात्मक परीक्षाको पाठ्यक्रम

पद : प्राविधिक अधिकृत (सूचना प्रविधि) **समूह : प्राविधिक** **तह/श्रेणी : अधिकृत तृतीय**

Full Marks: 30 Time : 1 hr. Pass Marks:15

S.N.	Topics	No. of question	Marks	Remarks
1.	Basic Configuration of a computer, Operating System (OS) & Application programs setup / removal, Connection of network/sound etc. cards, Connection of CD/DVD or hard drives (HDD/SSD), Device driver setup, Setup of local printer/network printer, Troubleshooting, Word processor, Spreadsheet, Presentation	1	6	
2.	Procedural & Object Oriented Programming C/C++/Python, Data structure & Algorithms	1	6	
3.	Computer Network setup, Cabling, Switch configuration, Router configuration, Routing protocols - IGP, VLAN, ACL, Network troubleshooting	1	6	
4,	Servers and Virtual machine configurations, Video conferencing, Online meeting/class hosting	1	6	
5.	DBMS (DDL, DML, SQL)	1	6	
Total		**5**	**30**	

Note: The depth of each topic is based on the curriculum specified for the **first and second paper**.

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प्रयोगात्मक परीक्षाको पाठ्यक्रम

पद : प्राविधिक अधिकृत (इलेक्ट्रिसिटी) **समूह : प्राविधिक** **तह/श्रेणी : अधिकृत तृतीय**

पूर्णाङ्क : ३०

समय : १ घण्टा **उत्तिर्णाङ्कः१५**

Objective: To perform fundamental electrical engineering experiments related to basic circuits, electrical machines, measurement and instrumentation, switchgear and protection, and power electronics.

Specification Chart

S.No.	Course Content (Activities)	No.of Question	Marks
1.	• To verify the Ohm's Law • To verify the Kirchhoff's Voltage and Current Law, Thevenin's Theorem, Superposition theorem • To verify the Thevenin's Theorem, Superposition theorem	1	5
2.	• To perform turn ratio test of two winding transformer • To perform open circuit and short circuit test of two winding transformer	1	5
3.	• To measure resistance, voltage, current in single and three phase circuit • To measure power (two wattmeter method) in three phase circuit with R and RL loads • To measure step and impulse response of RL and RC circuit using oscilloscope	1	5
4.	• To perform protective CT characteristics and draw magnetizing curve and find knee point voltage • To measure the soil resistivity • To Study the operation of protective relays (overcurrent relay)	1	5
5.	• To perform half wave rectification with diode • To perform full wave rectification with diodes	1	5
6.	• To perform open circuit characteristics and load characteristics of dc shunt generator • To perform speed control of dc shunt motor using armature and field control method • To perform open and block rotor test of single-phase motor	1	5
	Total	**6**	**30**

Evaluation Criteria:

1. Drawing of the electrical circuit/connection diagram.
2. Proper connection and safe operation of the experiment.
3. Recording of observations and necessary calculations.
4. Interpretation of results and viva voce.

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सेवा आयोग

प्रयोगात्मक परीक्षाको पाठ्यक्रम

पद : प्राविधिक अधिकृत (इन्जिनियरिङ) **समूह : प्राविधिक** **तह/श्रेणी : अधिकृत तृतीय**
पूर्णाङ्क : ३० **समय : १ घण्टा** **उत्तिर्णाङ्कः१५**

Objective: The objective of this practical examination is to bridge the gap between theoretical engineering principles and on-site technical execution. It is designed to verify that the candidate possesses the diagnostic precision, mathematical accuracy, and regulatory compliance required to lead a construction project safely and efficiently.

Specification Chart

S.No.	Course Content (Activities)	No.of Question	Marks
1.	Perform concrete tests, interpretation of test results and crack patterns	1	5
2.	Setting out building layouts	1	5
3.	Identify a Venturi meter or Orifice meter from a layout. Explanation of the logic behind which has the lowest pressure based on the Bernoulli Equation	1	5
4.	Calculation of the moisture content and void ratio of soils and its impact in foundation.	1	5
5.	Identification and provision of stirrup spacing in beams and columns, Sufficiency of development length for re-bars.	1	5
6.	Diagnosis of Structural Failures	1	5
	Total	**6**	**30**

Evaluation Criteria:

1. Interpretation of results
2. Code Compliance
3. Analytical Skill
4. Diagnosis of Problems
5. Solution of technical problems

त्रिभुवन विश्वविद्यालय

सेवा आयोग

प्रयोगात्मक परीक्षाको पाठ्यक्रम

पद : ल्याब अधिकृत **समूह : प्राविधिक** **तह/श्रेणी : अधिकृत तृतीय**

पूर्णाङ्क : ३० **समय : १ घण्टा** **उत्तिर्णाङ्कः१५**

Objective: Maintain laws and regulations, qualitative and quantitative responsibility of laboratory.

Specification Chart

S.No.	Course Content (Activities)	No. of Question	Marks
1.	Storage and Handling of hazardous chemicals and waste management, symbol for toxic chemicals (GHS).	1	5
2.	Responsibilities of Laboratory Officer: monitor procurement, use, and disposal of chemicals used in the lab, self-inspections, current legal requirements concerning regulated substances, as provided through EHS resources.	1	5
3.	Certification of laboratory facilities, Reagents/materials certification, Standard operating procedure (SOP), Reference standard.	1	5
4.	Create ethical, professional and respectful laboratory environment, comply with laws and regulations, reporting potential violation.	1	5
5.	Draw the loop diagrams: Kipps apparatus, Hydrogen gas synthesis, NH_3 synthesis etc.	1	5
6.	Calibrate the instrument: pH Meters, Potentiometer, spectrophotometer etc.	1	5
	Total	**6**	**30**

त्रिभुवन विश्वविद्यालय

सेवा आयोग

प्रयोगात्मक परीक्षाको पाठ्यक्रम

पद : प्राविधिक अधिकृत (सम्पादन) **समूह : प्राविधिक** **तह/श्रेणी : अधिकृत तृतीय**

पूर्णाङ्क : ३० **समय : १ घण्टा** **उत्तिर्णाङ्कः१५**

Objective:

1. Adapt news content effectively across multiple platforms, including social media and radio.
2. Write accurate news stories with appropriate visuals, captions, and source attribution.
3. Edit texts professionally, analyze sources, and evaluate news values for effectiveness.

Specification Chart

S.No.	Course Content (Activities)	No.of Question	Marks
1.	Prepared two separate messages for Facebook and X on the same issue or theme.	1	5
2.	Download a news story from an online news portal and adapted it into a radio news script.	1	5
3.	Write a hard news story about any event or incident, select a suitable photo from an open-source platform, write an appropriate caption, and provide proper photo credit.	1	5
4.	Identify the sources used in two given news stories from a broadsheet newspaper and categorize them into formal and informal sources.	1	5
5.	Edit a one-page English text using the Track Changes option.	1	5
6.	Identify the news values in two news stories from an online news portal and provide your opinion on the effectiveness of each story.	1	5
	Total	**6**	**30**

Evaluation Criteria:

1. Different nature of social media messages
2. Differences in writing for the eyes and the ears
3. Selection of appropriate photographs for the given text
4. Understanding of news sources
5. Editing skills
6. Understanding of news values or news criteria

त्रिभुवन विश्वविद्यालय

सेवा आयोग

प्रयोगात्मक परीक्षाको पाठ्यक्रम

पद : प्राविधिक अधिकृत (बायोमेडिकल इन्जिनियरिङ) समूह : स्वास्थ्य तह/श्रेणी : अधिकृत तृतीय
पूर्णाङ्क : ३० समय : १ घण्टा उत्तिर्णाङ्कः१५

1. Biomedical Instrumentation (8 Marks)

1.1 Measurement of vital signs using available devices, eg. ECG monitor observation, Digital BP measurement, Pulse oximeter reading (SpO_2 & pulse rate)

1.2 Identification of common sensors, eg. Temperature probe, Pulse sensor, Pressure sensor (demonstration)

1.3 Basic safety awareness of patient equipment

2. Medical Imaging Systems (5 Marks)

2.1 Identification of imaging equipment (model/picture/demo): X-ray / Ultrasound / CT / MRI

2.2 Identification of major parts: Control panel, display, probe/tube

2.3 Basic radiation safety rules

3. Digital Electronics & Microprocessors/Microcontrollers (10 Marks)

3.1 Identification of logic gate ICs

3.2 Verification of ONE simple gate (e.g., AND or OR)

3.3 Use of breadboard and power supply

3.4 Demonstration of LED blinking, simple display output etc.

3.5 Identification of ports and components

4. Control and Communication Systems (7 Marks)

4.1 Demonstration of a simple control system, eg. temperature controller or motor speed controller

4.2 Identification of input, controller, and output

4.3 Observation of system response (increase/decrease)

4.4 Demonstration of signal transmission, eg. wired serial communication OR wireless module

4.5 Identification of transmitter and receiver

4.6 Basic idea of noise/interference

Tentative Practical Marks Distribution

Area	**Marks**
Biomedical Instrumentation	8
Medical Imaging Systems	5
Digital Electronics & Microprocessors/Microcontrollers	10
Control and Communication Systems	7
Total	**30 Marks**

*There may be minor deviation in the marks allocated